(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number : **0 598 585 A3**

(12) EUROPEAN PATENT APPLICATION

(21) Application number : **93309118.3**

(51) Int. Cl.[5] : **H03F 1/32**

(22) Date of filing : **15.11.93**

(30) Priority : **16.11.92 GB 9224032**
02.08.93 GB 9315985

(43) Date of publication of application :
25.05.94 Bulletin 94/21

(84) Designated Contracting States :
DE FR

(88) Date of deferred publication of search report :
29.03.95 Bulletin 95/13

(71) Applicant : **LINEAR MODULATION TECHNOLOGY LTD**
Cross Key House,
Westfield Industrial Estate
Midsomer Norton, Bath BA3 4BS (GB)

(72) Inventor : **Whitmarsh, William James**
1 Malthouse Barn
Chelwood, Bristol BS18 4NN (GB)
Inventor : **Whittle, Simon Maurice**
Rock House,
295 Bloomfield Road
Bath BA2 2NU (GB)
Inventor : **Parry, Ian Stuart**
21 Locksmeade Road
Ham, Richmond TW10 7YT (GB)

(74) Representative : **Ayers, Martyn Lewis Stanley et al**
J.A. KEMP & CO.
14 South Square
Gray's Inn
London WC1R 5LX (GB)

(54) Automatic calibration of the quadrature balance within a cartesian amplifier.

(57) A Cartesian amplifier in which an input signal is pre-processed and split into two quadrature components. Both quadrature components are passed, in parallel, through an error amplifier (4), after which they are re-combined and up-converted to RF. The output of the amplifier is used to provide a feedback signal. This feedback is downconverted from RF to baseband and resolved into two quadrature components which are fed to the respective inputs of the error amplifier (4). Periodically the pre-processor (3) is switched into a calibration mode in which test signals are applied to the amplifier instead of the input signal. At these times the signal strength of the output of the power amplifier is measured and used to provide predistortion factors in the signal preprocessor (3) to improve amplifier linearity.

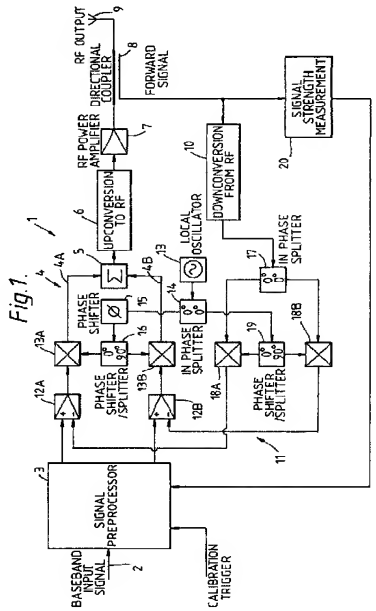

Fig.1.

EP 0 598 585 A3

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 93 30 9118

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.5)
Y	US-A-4 462 001 (H. GIRARD) * column 1, line 29 - column 4, line 38; figure 1 *	1	H03F1/32
Y	TRANSACTIONS OF THE INSTITUTE OF ELECTRONICS AND COMMUNICATION ENGINEERS OF JAPAN, SECTION E, vol.E74, no.5, June 1991, TOKYO JP pages 1503 - 1511, XP262307 Y. AKAIWA 'DIGITAL MODULATION/DEMODULATION TECHNIQUES FOR MOBILE RADIO COMMUNICATIONS IN JAPAN' * page 1506 - page 1507; figures 12,14 *	1	
Y	GB-A-2 239 770 (MITSUBISHI DENKI K.K.) * page 5, line 6 - page 10, line 7; figures 2-4 *	1	
A	US-A-5 066 923 (P.H. GAILUS ET AL) * the whole document *	1-10,12	

TECHNICAL FIELDS SEARCHED (Int.Cl.5)

H03F
H04L

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	6 February 1995	Tyberghien, G

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)